

# W5YI

America's Oldest Ham Radio Newsletter

## REPORT

Up to the minute news from the world of amateur radio, personal computing and emerging electronics. While no guarantee is made, information is from sources we believe to be reliable.

May be republished providing credit is given to *The W5YI Report*.

Fred Maia, W5YI, Editor, P.O. Box 565101, Dallas TX 75356

Electronic mail: [fmaia@prodigy.net](mailto:fmaia@prodigy.net) Website: <http://www.w5yi.org>

Tel. 817-461-6443 FAX: 817-548-9594

### *In This Issue...*

Public Notice on New FCC Form 605  
How to Register your TIN in ULS  
New/Upgrading Ham Radio Statistics  
Amateur Radio Call Signs to Aug. 1st  
Last SAREX Mission STS-93 Returns  
Sweden Reduces Code to 5 wpm  
PC Shipments Worldwide Soaring  
AOL & Microsoft Messaging Battle  
Hurricane Season to be Among Worst  
UK's New Class A/B License Debuts  
Latest FCC Ham Enforcement Actions  
LPFM: "Not an Interference Threat"  
LPFM License Hoarding in Australia

Vol. 21, Issue #16

\$1.50

PUBLISHED TWICE A MONTH

August 15, 1999

## FCC DETAILS USE OF THEIR FCC FORM 605 UNDER NEW ULS

In our last issue we sent you a copy of the new NCVEC Form 605 Amateur Radio Application which is to be used in conjunction with license examinations and electronic filings by the VE/VEC community. This is an internally produced VEC Form which can not be sent to the FCC.

The FCC has now released a Public Notice explaining the FCC Form 605 which is to be used in all other cases. Here is a verbatim copy:

### **PUBLIC NOTICE**

FEDERAL COMMUNICATIONS COMMISSION  
445 TWELFTH STREET, S.W.; TW-A325  
WASHINGTON, D.C. 20554

DA 99-1455

Released: July 23, 1999

News Media Information: (202) 418-0500

Fax-On-Demand: (202) 418-2830

Internet: <http://www.fcc.gov>

### **WIRELESS TELECOMMUNICATIONS BUREAU TO BEGIN USE OF UNIVERSAL LICENSING SYSTEM (ULS) FOR LICENSING IN THE AMATEUR RADIO SERVICES BEGINNING ON AUGUST 16, 1999**

On August 16, 1999, the Wireless Telecommunications Bureau (Bureau) will begin use of the Universal Licensing System (ULS) for all application and licensing activity in the Amateur Radio Services.<sup>1</sup>

ULS is a new, interactive licensing database developed by the Bureau to consolidate and replace eleven existing licensing systems used to process applications and grant licenses in wireless services. ULS provides numerous benefits, including fast and easy electronic filing, improved data accuracy through

automated checking of applications, and enhanced electronic access to licensing information.

This Public Notice summarizes the procedures that will take effect on August 16, 1999, for station and operator licensing in the Amateur Radio Services using ULS and in accordance with the ULS rules. The conversion of the Amateur Radio Services to ULS will affect the filing of applications with the Bureau, and we encourage licensees to become familiar with these changes now (even if you do not anticipate renewing or modifying your license in the near future).

For further information regarding the ULS rules and procedures, please refer to the FCC's ULS Internet site at <http://www.fcc.gov/wtb/uls>.<sup>2</sup>

### **OVERVIEW OF ULS CONVERSION**

#### **I. NEW FCC FORM 605**

On August 16, 1999, the Bureau will begin use of FCC Form 605 (OMB Control Number 3060-0850) for Amateur Service application filings for license renewals, modifications, cancellations, application withdrawals and amendments, requests for duplicate licenses, and administrative updates (i.e., a change of address or other clerical license modification). FCC Form 605 will also be used to apply for vanity call signs under the Vanity Call Sign System program.

Applications for new licenses or for a change in operator class will continue to be filed through a Volunteer Examiner-Coordinator (VEC). As described below, applications for Club, Military Recreation, and RACES licenses will continue to be made on FCC Form 610B until further notice.

#### **New Filing Procedures**

For applications that do not need to be filed by a VEC, such as renewals and administrative updates,<sup>3</sup> Amateur Service licensees may file FCC Form 605 electronically (interactively) or manually (see "ULS Filing Procedures" below).

THE W5YI REPORT [Pub. No. 009-311] is published twice monthly by The W5YI Group, Inc., 2000 E. Randol Mill Road # 608-A, Arlington, TX 76011  
SUBSCRIPTION RATE: (U.S., Canada and Mexico) One Year (24 issues) \$24.50 • Two Years: \$45.00 • Three Years: \$64.00. • Tel. 817/461-6443  
Foreign Subscriptions via Air Mail: \$39.50 per year. (Payment may be made by Check, Money Order, VISA or MasterCard payable in U.S. funds.)  
Periodicals Postage paid at Arlington, TX. POSTMASTER: Send address changes to THE W5YI REPORT, P.O. Box 565101, Dallas, TX 75356



# W5YI REPORT

America's Oldest Ham Radio Newsletter

Page #2

August 15, 1999

Electronically filed applications will be subject to automated edit checking, enabling the applicant to make corrections before filing the application. Manually filed applications will not be checked automatically, and may be subject to dismissal if they are defective or incomplete.

Amateur Service licensees may continue to use pre-ULS application forms (FCC Forms 610 and 610V) for a six-month transition period (i.e., until February 16, 2000), so long as the applicant provides the supplemental information described below (see Appendix A).

## Effect of ULS Data Conversion on Processing Prior to August 16

The ULS conversion process requires the transfer of existing Amateur Radio Services licensing data into the ULS database. To accommodate the transfer, it will be necessary to discontinue electronic filing activity in the pre-ULS system as follows:

- Electronic files submitted by VECs under the current filing system will not be accepted after 4 p.m. EDT on August 8, 1999.
- Electronic renewals via FCC Form 900 will not be accepted after 9 a.m. EDT on August 9, 1999.
- Electronic submission of FCC Form 610V will not be available after 5:30 p.m. EDT on August 13, 1999.

Beginning August 16, 1999, FCC Form 605 may be filed electronically in ULS, and Amateur Radio Services licensing data will be available to the public via ULS. The pre-ULS database will no longer be available to the public.

## Automated Processing of Amateur Service Applications in ULS

Under ULS, applicants may file FCC Form 605 electronically at any time 24 hours a day, seven days a week. Automated processing of electronically filed applications will occur nightly on each business day, beginning at approximately 11 p.m., EDT. When the nightly processing run is completed, ULS will generate a file listing the day's licensing activity, and processing results will be available for query through the ULS Internet public access system. Applications filed on weekends and holidays will be given a receipt date for, and will be processed on, the next business day.

## II. REGISTRATION OF TAXPAYER IDENTIFICATION NUMBERS (TINs)

In order to file any application in ULS electronically or manually, you must (1) register your TIN in ULS and associate your current callsign(s) with your TIN; and (2) provide your TIN on all applications filed on or after August 16.

For individuals, the TIN is your Social Security Number (SSN). For businesses, the TIN is the Employer Identification Number (EIN) of the business. Under some circumstances, Amateur Service applicants or licensees may not be required by law to have a TIN (e.g., citizens of foreign countries and certain nonresident aliens). The FCC will provide you with an FCC-generated identification number for access to ULS if and only if you are not required by law to have a TIN. To determine whether you fall within this category, call ULS Technical Support at (202) 414-1250.

Trustees and custodians of Club, Military Recreation, and RACES licenses should not use their personal Social Security Number as the TIN for these licenses, but should instead use an EIN (when one is available). Otherwise, contact ULS Technical Support to obtain a FCC-generated identification number.

The Bureau urges Amateur Service applicants and licensees to register their TINs immediately, and not to wait until the ULS conversion date for the service. You only need to register your TIN once.

**IMPORTANT:** If you do not register your TIN, you will be **UNABLE** to file applications in ULS. Additionally, applications that do not contain your TIN on or after August 16 will be **DISMISSED** as defective.

## There are several ways to register your TIN in ULS:

### 1. Electronic TIN Registration:

The Bureau strongly recommends electronic registration. To register electronically, access the FCC's ULS Internet site at <http://www.fcc.gov/wtb/uls>, click on the "ULS TIN/Call Sign Registration" link, and follow the on-line instructions.

When you register your TIN electronically, you select a password to identify yourself in future, private transactions with the FCC database. (This is analogous to setting a PIN when your bank gives you a new ATM card.) Your password can be 5 to 30 characters (letters and/or numbers) long and is case-sensitive. For additional security, you must also specify a personal or corporate identifier. We recommend that you not use your Amateur Service call sign or any other call sign that can be associated with you as a password or identifier.

After registering your TIN, you will be asked to enter your call sign(s). Associating your call sign(s) with your TIN in ULS will enable you to file renewals, modifications, notifications, and other filings with respect to the call sign(s) identified.

### 2. Automatic TIN Registration Through VECs (available beginning August 16, 1999):

As a convenience for Amateur Service applicants and licensees, the Bureau has established an automatic TIN registration process for Amateur Service applications filed through VECs. If you are filing an application through a VEC and have not previously registered your TIN, you may submit your TIN to the VEC with the application. When the VEC files the application on your behalf with the Commission, your TIN will be automatically registered in ULS. Note that if you register your TIN through the automated VEC registration process, you must still obtain a password if you want to file in ULS electronically in the future. To obtain a password, call ULS Technical Support at (202) 414-1250.

### 3. Manual TIN Registration:

To register your TIN manually, use FCC Form 606 (TIN Registration Form). This form can be obtained from the Internet at <http://www.fcc.gov/formpage.html>, or by calling the FCC's Forms Distribution Center at 1-800-418-FORM (3676). FCC Form 606 also allows you to associate your callsign(s) with your TIN. If you register your TIN manually, you must call ULS Technical Support at (202) 414-1250 to obtain a password before you can file applications electronically in ULS.



# W5YI REPORT

America's Oldest Ham Radio Newsletter

Page #3

August 15, 1999

Manually-filed FCC Form 606 should be mailed to:

Federal Communications Commission  
Information Technology Division  
Attention: Kathy McClucas  
1270 Fairfield Road  
Gettysburg, PA 17325-7245

For More Information on TIN Registration: Fact Sheet Number 206-U, released in April 1999, discusses TIN registration in a question-and-answer format. A link to this Fact Sheet is available on the ULS Internet site (<http://www.fcc.gov/wtb/uls>) under the "ULS Headlines" section. The ULS Internet site contains additional information about registering your TIN under the topic "Getting your Login and Password (Tin/Call Sign Registration)." The site also contains a list of Frequently Asked Questions (FAQs) about TIN registration.

## Confidentiality of TIN Information

Once registered, your TIN will not be disclosed to the public. Instead, the ULS will generate a *Licensee Identification Number* that will be used in place of your TIN on publicly available records.

## III. PROVIDING YOUR TIN ON APPLICATIONS

In addition to registering your TIN, beginning August 16, 1999, you must also include the TIN or Licensee Identification Number on all applications filed in ULS. All applications filed on or after this date that do not include the information described below will be DISMISSED as defective.

All paper applications filed directly with the FCC or via Mellon Bank (i.e., Vanity Call Sign applications) must include a TIN.

For applications that a VEC files on your behalf after August 16, you will have the option of providing either your TIN or your Licensee Identification Number to the VEC. Because you obtain a Licensee Identification Number when you register your TIN, you:

- should register your TIN prior to qualifying for an Amateur Service license if you plan to provide a Licensee Identification Number; and
- cannot use the Automatic TIN Registration Through a VEC feature and provide the VEC your Licensee Identification Number as part of the same filing.

The Bureau encourages applicants to include their TIN on all filings submitted to the FCC between now and August 16. If you do not provide your TIN with an application filed before August 16, processing of your application may be delayed. If you do not provide your TIN with an application filed on or after August 16, your application will be dismissed.

## IV. FILING PROCEDURES UNDER ULS

FCC Form 605 replaces all letter requests and old forms (FCC Form 610 and FCC Form 610-V) previously used by Amateur Radio Services licensees (except Form 610B, as described below). FCC Form 605 will be used for all Amateur Service licensing applications filed directly with the FCC or via Mellon Bank. Manual filers must use an edition of FCC Form 605 with a July 1999 edition date or later. Filings on earlier editions of FCC Form 605 will be dismissed as defective.

To file FCC Form 605 electronically you must use your browser to connect to ULS through the Commission's wide-area network via a toll-free number, 1-800-844-2784. Instructions for connecting to ULS are contained on the ULS website at <http://www.fcc.gov/wtb/uls>. For instructions on filing FCC Form 605 manually, refer to the instructions on the form.

## Required and Optional Applicant Information:

All Amateur Radio Services licensees must provide a U.S. mailing address on their applications; the Bureau will not accept foreign addresses.<sup>4</sup> FCC Form 605 also includes fields for applicant telephone number, fax number, and e-mail address. These fields are optional for Amateur applicants and licensees, and any information that is provided in these fields will not be made available to the public.

## Use of Pre-ULS Forms:

Amateur Service licensees may continue to use FCC Form 610 and FCC Form 610-V until February 16, 2000, provided that they submit their TINs and certain other required information with the application. Supplemental information required when filing Forms 610 and 610-V is described in Appendix A of this Public Notice. Applications filed on FCC Form 610 and FCC Form 610-V after February 16, 2000 will be dismissed as defective.

Although licensees have the option of continuing to use pre-ULS forms during the six-month transition period, the Bureau strongly urges applicants and licensees to begin using FCC Form 605 immediately. The choice of application form and filing method will affect processing in the following way:

- (1) FCC Form 605 filed electronically - is the most efficient filing method and will result in expedited processing compared to filing manually.
- (2) FCC Form 605 filed manually - will result in expedited processing compared to filing pre-ULS forms or letter requests.
- (3) Pre-ULS forms or letter requests - is not recommended and will result in slower processing than the options described above. Submissions on pre-ULS forms that are received before August 16, 1999, but are still pending as of the conversion, are subject to additional processing delay while the Bureau contacts you to obtain the additional information needed to process these applications under ULS. Applicants filing pre-ULS forms or letter requests must remember to include their TIN with each filing submission. As of August 16, 1999, failure to provide the TIN on each application or letter request will result in dismissal.

## Continued Use of FCC Form 610B for Club, Military Recreation, and RACES Licenses:

Until further notice, applicants should continue to use FCC Form 610B for Club and Military Recreation station licenses and requests for modifications and renewals of Club, Military Recreation, and RACES station licenses. In the future, ULS will accommodate the processing of these license applications on FCC Form 605 through call sign administrators; until this program is in place, however, Club, Military Recreation, and RACES station licensees and applicants will be unable to use FCC Form 605.



# W5YI REPORT

America's Oldest Ham Radio Newsletter

Page #4

August 15, 1999

**Important:** Beginning August 16, you must provide the EIN or FCC-generated ID number and other information specified in Appendix A on each FCC Form 610B you submit. Applications that do not include this information are subject to dismissal.

## V. APPLICATION FEES (Vanity Call Sign applications)

Amateur Service applicants filing vanity call sign applications in ULS remain subject to existing application fees under Section 1.1102 of the rules, 47 CFR § 1.1102. ULS, however, will simplify the process of submitting fees to the Commission.

When an applicant submits an application electronically, ULS will assign a file number and show the correct fee amount due and the payment type code on a confirmation screen.

Clicking on the "Form 159" button will pre-fill this information on the FCC Form 159. ULS will then instruct the applicant on how to print out the pre-filled FCC Form 159 so that it can be mailed to Mellon Bank at the address specified below.

**NOTE:** Applicants who do not use the pre-printed FCC Form 159 in connection with an electronically filed application must enter the ULS-generated file number in the FCC Form 159 box labeled FCC Code 2. If problems arise while trying to print FCC Form 159, call the FCC Technical Support Hotline at (202) 414-1250 for assistance (available Monday through Friday, from 8 a.m. to 6 p.m. EDT). Mellon Bank must receive the FCC Form 159 and accompanying fee within 10 calendar days of submitting the application. In the near future, ULS will be capable of accepting credit card payments online. The Bureau will release a public notice and provide information on its web site when this option becomes available.

**Where to Send Payments for Electronically-filed Applications.** All payments for electronically filed applications should be sent to:

Federal Communications Commission  
ULS Electronic Filings  
P.O. Box 358994  
Pittsburgh, PA 15251-5994

## VI. WHERE TO SEND MANUALLY FILED APPLICATIONS IN THE AMATEUR RADIO SERVICES

**Manually filed applications that do not require fees should be sent to:**

Federal Communications Commission  
1270 Fairfield Road  
Gettysburg, PA 17325-7245

**Manually filed applications that require fees (applications for Vanity Call Signs) should be sent to:**

Federal Communications Commission  
Wireless Telecommunications Bureau  
P.O. Box 358130  
Pittsburgh, PA 15251-5130

## FOR FURTHER INFORMATION OR ASSISTANCE

For general information about ULS, including answers to frequently asked questions regarding submitting applications, finding the status of pending applications, and searching the ULS database, the Commission recommends first consulting the ULS webpage at <http://www.fcc.gov/wtb/uls>. Individuals having specific questions not addressed on the webpage may contact Commission staff via phone or e-mail as described below.

**FCC Technical Support Hotline:** (202) 414-1250, or via e-mail at [ulscomm@fcc.gov](mailto:ulscomm@fcc.gov). Contact the Technical Support Hotline about questions concerning computer access to ULS, TIN registration, uploading files, or submitting attachments in ULS. The hotline is available Monday through Friday, from 8 a.m. to 6 p.m., EDT. In order to provide better service to ULS users and ensure the security of the electronic filing system, all calls to the hotline are recorded.

**ULS Licensing Support:** 1-888-CALL-FCC (225-5322), or via e-mail at [ulshelp@fcc.gov](mailto:ulshelp@fcc.gov). Contact Licensing Support with questions about which application purpose(s) are appropriate for a particular filing, what information is being requested on a ULS Form or Schedule, or any other ULS-related licensing matter. ULS Licensing Support is available Monday through Friday, from 8 a.m. to 5:30 p.m. EDT.

Comments on ULS should be sent via email to: [ulscomm@fcc.gov](mailto:ulscomm@fcc.gov).

## APPENDIX A

### FCC FORM 610 (September 1997 Edition) INFORMATION REQUIREMENTS

Beginning August 16, 1999, we will accept filings made on FCC Form 610 ("Application Form 610 for Amateur Operator/Primary Station License"), provided:

- 1) The TIN is provided on the application. The TIN should be placed in the upper right hand corner of the application.
- 2) The purpose cannot be "Examination" (Blocks 4A or 4B)
- 3) The following items are required to be completed:
  - a) Applicant Name and Address
  - b) What you are applying for
  - c) Call Sign shown on license
  - d) Signature and Date

### FCC FORM 610-B (September 1997 Edition) INFORMATION REQUIREMENTS

Beginning August 16, 1999, we will accept filings made on FCC Form 610-B ("Application to Renew or Modify an Amateur Club, RACES or Military Recreation Station License"), provided:

The EIN or FCC-generated ID number is provided on the application. The number should be placed in the upper right hand corner of the application.

**NOTE:** Until notified otherwise, do not use FCC Form 605 for applications to renew or modify an Amateur Club, RACES, or Military Recreation Station License.



# W5YI REPORT

America's Oldest Ham Radio Newsletter

Page #5

August 15, 1999

## FCC FORM 610-V (March 1998 Edition) INFORMATION REQUIREMENTS

Beginning August 16, 1999, we will accept filings made on FCC Form 610-V ("Amateur Station Vanity Call Sign Request"), provided:

- 1) The TIN is provided on the application. The TIN should be placed in the upper right hand corner of the application.
- 2) The following items are required to be completed:
  - a) Applicant Name and Address
  - b) Current call sign to be vacated
  - c) Eligibility for a vanity call sign
  - d) Signature and Date
- 3) If applicable, Section 2 (call sign preference) must be filled out.

### Footnotes:

- 1 The conversion affects those services licensed under Part 97 of the Commission's rules, 47 C.F.R. Part 97. For a definition of "Amateur Radio Services," see § 97.3(a)(2), 47 C.F.R. § 97.3(a)(2).
- 2 Additional information can be found in the ULS Report and Order. See Amendment of Parts 0, 1, 12, 22, 24, 26, 27, 80, 87, 90, 95, 97, and 101 of the Commission's Rules to Facilitate the Development and Use of the Universal Licensing System in the Wireless Telecommunications Services, WT Docket No. 98-20, Report and Order, 13 FCC Rcd 21027 (1998), recon., FCC 99-139 (adopted June 10, 1999, released June 28, 1999). See also "Wireless Telecommunications Bureau Announces New Universal Licensing System (ULS) Filing Procedures and Revised Application Forms Effective February 16, 1999," Public Notice, February 10, 1999.
- 3 An Administrative Update is a change of any administrative data, such as a change in licensee's name, address, telephone number, e-mail, or contact information.
- 4 See § 97.23 of the Commission's rules, 47 C.F.R. § 97.23.
- 5 The FCC Form 159 will display in a separate browser window. If, after clicking on the "Form 159" button, you do not see the form, check the task bar at the bottom of your Windows 95/98 screen for a button labeled "Form 159." Click on this button to view the FCC Form 159.

## NEW AND UPGRADING AMATEUR STATISTICS

For the Month of July 1997, 1998 & 1999

License Class	New Amateurs			Upgrading Amateurs		
	1997	1998	1999	1997	1998	1999
Novice	58	45	63	0	0	3
Technician	1334	1172	1005	19	0	6
Tech Plus	108	157	137	282	218	230
General	15	22	9	310	237	188
Advanced	4	3	3	221	199	155
Extra Class	0	2	2	146	170	114
Club/Empty	172	64	87	3	0	1
<b>Total:</b>	<b>1691</b>	<b>1465</b>	<b>1306</b>	<b>981</b>	<b>824</b>	<b>697</b>
<b>Decrease:</b>	<b>(16.7%)</b>	<b>(13.4%)</b>	<b>(10.9%)</b>	<b>(7.1%)</b>	<b>(16.0%)</b>	<b>(15.3%)</b>

## AMATEUR RADIO STATION CALL SIGNS

...sequentially issued as of the first of August 1, 1999:

Radio District	Group A Extra	Group B Advanced	Group C Tech/Gen.	Group D Novice
0 (*)	AB0IZ	KI0QQ	(***)	KC0GHI
1 (*)	AA1UN	KE1LW	(***)	KB1EHS
2 (*)	AB2GI	KG2QY	(***)	KC2FJS
3 (*)	AA3ST	KF3DJ	(***)	KB3EAB
4 (*)	AF4PL	KV4BM	(***)	KG4EGB
5 (*)	AC5TA	KM5VS	(***)	KD5HXQ
6 (*)	AD6IZ	KR6CE	(***)	KF6YJC
7 (*)	AC7BK	KK7UC	(***)	KD7GAA
8 (*)	AB8EK	KI8JA	(***)	KC8MUD
9 (*)	AA9XG	KG9QB	(***)	KB9VBI
N. Mariana	NH0P	AH0BC	KH0IF	WH0ABM
Guam	(**)	AH2DL	KH2UN	WH2AOB
Hawaii	WH7C	AH6PW	KH7UY	WH6DFZ
Am. Samoa	AH8R	AH8AH	KH8DO	WH8ABI
Alaska	AL0Q	AL7RM	KL0UI	WL7CVD
Virgin Isl.	(**)	KP2CP	NP2KN	WP2AIK
Puerto Rico	WP3F	KP3BM	WP3DY	WP4NOQ

\* = All 1-by-2 & 2-by-1 call signs have been assigned. 2-by-2 call signs now being sequentially assigned.

\*\* = All 2-by-1 call signs have been assigned. Group "B" -by-2 call signs now being assigned.

\*\*\* = All Group "C" (N-by-3) call signs have been allocated. Group "D" 2-by-3 call signs now being assigned

[Source: FCC Amateur Service Database, Washington, DC]

■ **STS-93, the SAREX space shuttle flight commanded by Eileen Collins, KD5EDS** has been termed a success although it did have some technical problems while in flight. Other hams on board included Mission Specialists Michel Tognini, KD5EJZ, and Catherine Coleman, KC5ZTH. School students in Virginia, Texas and Florida got to speak to the shuttle astronauts on July 25<sup>th</sup> as did Jean-Pierre Haignere aboard the Russian Mir space station. The shuttle mission lasted only four days and returned to earth on July 27. It was the last in a series of 25 Shuttle Amateur Radio EXperiments.

■ **Sweden reduces code exam speed and number of license classes** HF Manager, Lars Olsson SM3AVQ of the *Swedish Radio Amateur Society* (SSA) and Board member, Stig Johansson, SM0CWC advise that their Post & Telecom agency has now reduced their 12 words-per-minute (60 characters/minute) Morse code exam speed to a top speed of 5 wpm (or 25 char./ min.) In addition, their four class license structure (it was Class A, B and C, plus a no-code VHF/UHF "T" Class) is now just two: Class 1 (all band w/5 wpm code and no subbands) and Class 2 (no code VHF and higher.) A one KW power level is authorized on all ham bands except on LF (135.7-137.8 kHz) and in the 30 meter and 13-cm band. (We also heard that Denmark lowered their code speed.)



# WSYI REPORT

America's Oldest Ham Radio Newsletter

Page #6

August 15, 1999

## CUTTING EDGE TECHNOLOGY

■ **Intermark offers a flexible ferrite sheet that you can cut and shape any way you like.** Its sticky backing lets you mount the RF-absorbing material on the inside of your radio equipment to help shield EMI emissions. It provides 3 to 12 dB of attenuation, in frequencies from 100 kHz to 1 GHz.

■ **For serious information seekers, CD-ROM jukeboxes aren't fast enough.** It takes time to physically change discs while searching through massive amounts of information. The small delays quickly add up. Some of the newest (and more expensive) CD-ROM jukeboxes therefore contain hard drives, which automatically store the most frequently accessed 20% of data. Magnetic hard drives are much faster than optical drives, thereby streamlining information searches.

■ **Chris Nandor of Curver, MA used his computer to vote 40,000 times** for Nomar Garciaparra of the Boston Red Sox to participate in the 1999 Major League Baseball All-Star Game. Authorities tracked him down because he used the same e-mail address and phone number on all of his votes.

■ **"He who hesitates" Dept. - The United Kingdom wanted to upgrade its welfare system,** and looked into the possibility of issuing plastic cards containing information in magnetic stripes on the back. But by the time the *Department of Trade and Industry* had finished its three-year feasibility study, the technology for the proposed system had become obsolete!

■ **Still have old reel-to-reel magnetic tapes? Better listen to them periodically.** Tape manufacturers recommend that audio and computer tapes be "exercised" at least once a year - that is, played at normal speed from start to finish. This helps keep the tape from sticking to itself and reduces the chance of "print through" (the faint pre-echo you hear at the beginnings of some songs).

■ **How do you keep track of dozens or even hundreds of lab animals?** All white mice look alike. The Stoelting Co. offers their Lab Trac pellets, which are inert glass beads that are injected under the animal's skin. The pellets, about the size of rice grains, contain internal ID codes that are read non-invasively from

outside the cage by a hand-held reader. The beads never need batteries.

■ **The state of West Virginia recently updated their driver's license system.** Photographs of license applicants are stored in a computer, and compared against earlier photos if possible. The Polaroid Co. developed a face-recognition system for this application to help weed out fraud.

■ **Tektronix, makers of oscilloscopes fondly used by hams and engineers for decades,** no longer uses ordinary cathode-ray tubes (CRTs) in their designs. Most of today's equipment uses monochrome or color liquid-crystal displays (LCDs) or plasma displays.

■ **What is the biggest single cause of microphone failure?** According to manufacturers, it isn't physical shock to the element, it's (surprise!) broken wiring in the cord.

■ **Some RF engineering firms make their own backfill material** to pour into the holes around ground rods to lower the ground resistance. Too much gravel and not enough water may increase the resistance between rod and earth, thereby decreasing system performance - and some professional communications companies won't guarantee their equipment under such conditions. The recipes of some of these mixtures (clay is often a main ingredient) are closely guarded trade secrets.

■ **Sometimes printed circuit board designers design metal pads that serve no electrical function.** They are there simply to trap solder. After the bare PC board is installed with electronic parts, some automated soldering systems feed molten solder onto the pins of tiny surface-mount integrated circuits. The physics of fluids dictate a certain "snap" action as the application tool is pulled away, and the solder conforms to a particular shape as it hardens. At the ends of some rows of pins, however, there may be a tendency for solder blobs to snap back to an adjacent pin, thereby shorting two pins together. A "robber" pad next to the end pin gives the solder a place to go, without affecting circuit performance.

■ **Whether you're a professional optical engineer or just a hobbyist,** software can help you create lens systems for cameras, telescopes or eyeglasses. Packages such as Virtual Optical Bench or Optics CAD let you click and drag components on a computer screen to change

lenses. You can examine chromatic aberration (how different colors of light are affected), image polarity and lens thickness -- all without having to grind a batch of lenses or build a bench.

■ **One of the reasons light-emitting diodes (LEDs) are so prevalent in today's world** is because vibration doesn't affect them. Avionics were particularly susceptible to incandescent lamp failures because vibrations in the airframe meant a short bulb life -- the filaments broke. When was the last time you replaced a dashboard lamp in your car?

■ **Chip manufacturers often like to give proper names ("code names") to their latest powerful integrated circuits** these days to make them easier to identify. But National Semiconductor was recently coerced to change the name of one of its newest chips from "Jedi" to "Gobi." Lucasfilm owns the "Jedi" trademark and asked National if they wouldn't mind calling their chip something else.

■ **Some of the most highly advanced light sensors teach themselves how to accurately read their targets.** Once they read a certain number of targets in optimum conditions, they can sense how viewing conditions change (time of day, for example), adjust their internal components accordingly, and continue operation.

## EMERGING COMMUNICATIONS

■ **Hams are well aware of how much some people hate the sight of antennas.** Cellular phone companies frequently have trouble getting permission from cities to erect new towers in certain areas. Those who complain apparently have no gripes against lighting towers for neighborhood athletic fields, however. You guessed right - some companies are combining the two!

■ **Ranchers in the Midwest are using satellite television to sell their cattle.** Rather than haul all of their animals on an expensive, potentially unhealthy trip to a distant city for auction, cattlemen simply take a video camera to the barn and show buyers how the animals look through television. The buyers place bids to the video auctioneer. Some stockyards already have permanent microwave dishes installed. Cattle are then shipped directly from seller to buyer. Other items sold in this manner include exotic animals and farm equipment.



# WSYI REPORT

America's Oldest Ham Radio Newsletter

Page #7

August 15, 1999

■ **Why haven't video phones become more popular?** They're fine in the conference room, but private users for the most part simply do not want to be seen while speaking on the phone. Several high-tech communications firms have learned this the hard way, spending large amounts of money on development of video telephones that just sit on the store shelves.

■ **The GAO - General Accounting Office - confirmed in a July 8<sup>th</sup> report that competition to cable is increasing but has a long way to go** due to the inability of DBS (direct broadcast satellites) to retransmit local TV signals.

Satellite's share of subscription TV increased from 4 percent in 1994 to 12 percent in mid-1998. During that period, cable TV's share declined from 93 percent to 85 percent.

The GAO's *"Changing Status of Competition to Cable"* report also said that it will be more than a decade - if ever - before digital television poses a threat to cable TV which now passes 97 percent of U.S. homes. Sixty-six percent of those homes (65 million households) subscribe to cable TV.

There are 10,000 cable franchises in the U.S. but only four companies account for 55 percent of all subscribers. The study was commissioned by the Senate's anti-trust committee. The GAO, the official research arm of Congress, concluded that the subscription TV market is not very competitive.

■ **In years to come, movies will move out of the theatre and into your living room!** A study by Paul Kagan Associates says that VOD (video-on-demand) will increase pay-per-view cable revenue nine times and that the average subscriber will spend \$7.26 per month in 2008 for pay programming and movies opposed to 80¢ now. That's a \$500 million market. VOD lets you watch what you want when you want it.

Movies will be ordered through digital set-top boxes accessing movies stored on cable servers. Satellite TV's version offers movies with staggered starts every 15 or 30 minutes.

■ **What long distance telephone companies won't tell you!** If you do not make many long distance telephone calls, you don't need a long distance company at all. Both AT&T and MCI Worldcom impose minimum usage charges plus various charges (such as for Universal Ser-

vice) even if you do not make any long distance calls at all.

More and more people are existing without naming a long distance carrier, instead they use a "10-10 dial around" service with deeply discounted (9¢ to 10¢ a minute) charges that show up on your local phone bill - an no added charges.

■ **The most powerful communications satellite ever will be launched next year.** "20.20," the new satellite, is being built by Space Systems Loral and will be put into geosynchronous orbit. With over 150 transponders and 25 kW, it effectively does the work of two satellites.

## COMPUTER STUFF

■ **Second quarter PC shipments soared! But Compaq is slipping.** Dataquest of San Jose, Calif. and rival researcher International Data Corp. (IDC) of Framingham, Mass. each released their personal computer second quarter shipment figures showing that PCs are selling well worldwide.

The big story, however, is the big increase by Dell Computer. Compaq was still the leader in U.S. shipments, but only by a hair. Some analysts are calling it a "statistical tie." Dataquest showed Compaq with a 16.8 percent U.S. share; Dell with 16.4 percent. IDC had it 16.6 and 16.3 percent.

Worldwide, where Compaq is the clear leader with a 14.6 percent of the market, shipments rose to 25.6 million, a 27 percent increase over the same period last year. IDC set the global PC market at \$3.5 billion in 1999 and said it would reach \$32.9 billion dollars by 2003.

Fueled by lower prices, strong consumer demand and heightened interest in the Internet, personal computer shipments were up more than 30 percent in the United States; 27 percent worldwide.

Both Compaq and Dell had U.S. increases of more than 50 percent. IBM was up 47 percent. More than 10 million PCs were shipped in the U.S. during the quarter. Much of the growth was due to repeat buyers upgrading older models.

■ **"But who will program it?"** Some computer scientists predict that before the next century is half over, a single microprocessor chip will have the mathematical computation power of 500 million Pentium Pro chips working together.

■ **Be careful when labeling CD-ROMs.** If adhesive labels aren't centered or attached properly, they may put the disc off balance and it will wobble. This creates reading, writing and tracking problems, and the software may not load at all.

■ **A new generation of VCRs uses internal hard drives instead of magnetic tape.** ReplayTV offers different models to record up to 10, 14 or 28 hours of programs. 30-second "jumps" can be made during playback to directly bypass commercials instead of skimming through them. And you can still watch one program while recording another. ReplayTV can let you edit a batch of programs for storage onto ordinary videotape.

■ **Most telemarketers and customer support technicians are used to verbal abuse; they expect it.** To help reduce the risk of losing one's temper, some companies in the phone business go so far as to train their works to talk to belligerent "customers." Software packages are available for this. This allows telephone support people to learn how to work with frustrated customers, without making mistakes against (and therefore losing forever) valuable customers in the real world.

■ **So many people downloaded clips from the newest "Star Wars" film earlier this year** that many network servers (particularly in offices) were temporarily swamped.

■ **Six Flags theme parks now use computer graphics and animation to simulate how a new ride will appear to the riders** - before the structure is even built. Designers can see how the dynamics such as gravity, acceleration, and even lighting will affect the experience.

## INTERNET NEWS

■ **American Online accuses Microsoft engineers of hacking AOL servers!** There is a battle raging between rival web-portal giants: the Microsoft Network, Yahoo and America Online.

AOL has a very popular "instant messaging" feature that allows users to see pop-up messages from others immediately when they are online. This permits real-time back-and-forth exchanges. AOL also owns ICQ (as in "I Seek You") and together, more than 80 million users have access to its instant messaging.

Using "reverse engineering" and



# WSYI REPORT

America's Oldest Ham Radio Newsletter

Page #8

August 15, 1999

protocols published by AOL, Microsoft and Yahoo have now designed and introduced new *MSN Messenger Service* software. It permits the 40 million users of MSN's "Hotmail" and untold millions of Yahoo surfers to also to send instant messages - including messages to the millions of AOL/ICQ users. More than 200,000 copies of the free software have already been downloaded. That infuriated AOL.

They don't want Microsoft and Yahoo to have access to its customers. While AOL includes advertising banners along with its instant messaging, MSN and Yahoo do not. But that is not saying that they might not in the future. And Microsoft left room for them to be inserted later.

AOL said the two companies were making unauthorized intrusions into their network which amounted to hacking ...and quickly electronically blocked incoming instant messages from Yahoo and MSN from their servers.

Microsoft engineers quickly wrote patches getting around the AOL blockade. AOL responded with still more blocks ...Microsoft with more revised patches. And at press time, the "cat-and-mouse" game continues.

Microsoft has wanted an industry standard allowing instantaneous message exchange for more than two years. But AOL is not interested in any service which has the potential to siphon off its users to competing websites.

■ **Online gambling operations are looking to set up shop in Australia** where Government-regulated online sports betting, horse racing and casino licenses are legal and available.

Antigua-based Intertops is planning to move from the Caribbean to Australia and acquire an existing online gambling operation possibly in Canberra. Intertops.com started in Austria in 1995 and relocated to Antigua two years later.

They believe Australia, being a developed nation is a more credible location ...and one that can take advantage of the potentially huge South East Asia Internet betting market.

■ **"How Lazy Do You Have to Be?"**

**Dept.** - A computer lab at the University of Cambridge, England, has a web page for its coffee pot. Rather than walk down the hall to see if the pot is full or empty, staff members (and anyone on the World Wide Web) can just point and click to see

a live video image from the camera stationed in the break room for that purpose. If you think we're kidding, go to <<http://www.cl.cam.ac.uk/coffee/coffee.html>>

■ **Smart Internet web-page developers know that it's best to design a page** that is initially light on graphics and short on loading time. If a page takes more than 10 seconds to load, most users will skip it. Heavy graphics and animation greatly increase the amount of time it takes for a web page to download. The first page loaded should explain exactly what users can expect to find in other sections of that web site, and there the large files can reside.

## WASHINGTON WHISPERS

■ Gulf and Atlantic coastal states from Louisiana to Maryland take note! **This year's hurricane season are predicted to be twice as worse as the average of the last forty years!** The National Hurricane Center (NHC) is getting ready for a very active 1999 hurricane season. By definition, a hurricane has sustained winds of 64 knots (74 mph) or higher.

Alternating male and female names in alphabetical order, this year's hurricanes will begin with Arlene (...followed by Bret, Cindy, Dennis, Emily, Floyd, Gert, Harvey, Irene, Jose, Katrina, Lenny, Maria, Nate, Ophelia, Philippe, Rita, Stan, Tammy, Vince and Wilma.)

Interestingly, Atlantic hurricane names are picked six years in advance and then recycled. (The year 2000 hurricane season starts off with "Alberto", 2001 "Allison"; 2002 "Arthur"; 2003 "Ana"; 2004 "Alex." In 2006 we go back to "Arlene" again. There are no Q, U, X, Y or Z named hurricanes. It seems that NHC couldn't come up with enough names beginning with these letters..

FEMA (Federal Emergency Management Agency) believes that 1999 Atlantic hurricane activity is very likely to be above the average for the 1950-1990 period. Their forecast is based on a variety of global and regional predictors previously shown to be related to forthcoming seasonal Atlantic tropical cyclone activity and landfall frequency.

"Predictions for 1999 include 9 hurricanes (average is 5.8), 14 named storms (average 9.3), 75 named storm days (average is 47), 40 hurricane days (average is 24), 4 intense (category 3-4-5) hurri-

canes (average is 2.2), 10 intense hurricane days (average is 4.7) and a *Hurricane Destruction Potential* (HDP) of 130 (average is 71). Collectively, net tropical cyclone activity is expected to be about 160 percent of the long term average."

NHC's "Tropical Prediction Center" is located on the campus of *Florida International University*, very close to where the Miami Hamboree is held every February. NHC's web site is located at: <<http://www.nhc.noaa.gov/>>

## AMATEUR RADIO

■ **The new Class A/B all-band 100-watt license took effect on August 2<sup>nd</sup> in the United Kingdom.** The A/B license (which requires 5 wpm Morse proficiency) is positioned between the Class B (VHF and higher) and the Class A (12 wpm code) license which permits 400 watt power on all bands.

UK Novices were not left out. Besides being authorized higher power (10 watts), Novices got new phone privileges at 80 meters and wider bands at 80, 30, 15 and 10 meters. And they also obtained all mode access to the 2-meter (144-146 MHz) band for the first time. (There is no 146 to 148 MHz allocation at 2 meters in Great Britain.)

Once the Morse requirement for HF operation is dropped at an upcoming World Radio Conference, Class A/B UK licensees will automatically become Class A licensees and will be able to radiate 400 watts on HF.

The *Radio Society of Great Britain* (RSGB) reports that in future years, there will be a move towards an incentive licensing program whereby each step up the ladder will require a more difficult examination to be passed - very similar to the system here in the United States.

■ **The South African Radio League (SARL) has established a gift fund in the name of outgoing International Amateur Radio Union (IARU) president Richard Baldwin, W1RU.** Baldwin served as IARU Secretary from 1976 to 1982 and as its president for 17 years from 1982 to 1999. Dick has been invited to attend the IARU Region 1 Conference in Lillehammer, Norway, in September as a guest of the Region where an official presentation by SARL President Hans Potgieter will be made at the IARU Dinner on September 24.



# W5YI REPORT

America's Oldest Ham Radio Newsletter

Page #9

August 15, 1999

## RECENT ENFORCEMENT ACTIONS

■ **Glen Baxter's civil suit against the Government is now a federal case.** On July 16<sup>th</sup>, K1MAN's libel lawsuit against the Federal Communications Commission and the U.S. Dept. of Justice was removed from the Kennebec County Superior Court (State of Maine) to the U.S. District Court for the District of Maine in Bangor.

■ The FCC said **Richard L. Whiten, WB2OTK** of Easley, S.C. requested that his ham license be canceled. Whiten chose this path of action rather than accept a license modification that would have precluded HF operation for four months. The FCC accepted the cancellation and also dismissed his application for vanity call sign W2OTK. Now Whiten is saying that he is the victim of computer hackers and that he never requested that his license be canceled.

In an unrelated incident, **Leonard D. Martin, KC5WHN** (Houston, TX) also turned in his ham license for cancellation rather than face enforcement proceedings involving his station.

■ **Jose E. Perez Triana, Jr., WP3BW** of Miramar San Juan, Puerto Rico has been ordered to report to the FCC's Field Office in San Juan to retake all Amateur Radio license examinations leading up to and including the General Class. FCC's Riley Hollingsworth said "...your license will be canceled if you do not appear for re-examination."

■ **The crack-down on club call sign abuse continues.** **Dean W. Manley, KH6B** of Hilo, Hawaii has been asked to justify the 21 club call signs that he holds.

And the FCC wants more information from **William T. Shipley, N4WS** of Cookeville, TN on six club call signs he has for the Cookeville Repeater Association.

FCC's Riley Hollingsworth wants to know each club's membership, meeting times and requests the document of origination for each club. He also wants copies of the minutes of each club meeting.

■ **Stephen K. Nace, KN5H** of Chandler, AZ has agreed to voluntarily relinquish the following four club call signs (WW7DX, WX6DX, N2IR and WW5DX) that he held. He apparently gets to keep N7FO, to call sign of the Baylor Canyon Contest Club.

■ **Tim Brown, WV8C** is the (now suspended) police chief of Norwood, Ohio. According to a story in the July 26<sup>th</sup> "Cincinnati Post," Brown faces charges for tampering with evidence and falsifying records.

Brown "...is accused of drinking and driving and, in the early morning hours of December 5, wrecking his Jeep, then lying about it and falsely reporting that it had been stolen." If convicted of a felony, it could cost him his police career.

## STUDY CONCLUDES LOW POWER FM BROADCASTING IS NOT AN INTERFERENCE THREAT

In what has to be the largest online filing ever forwarded to the FCC's *Electronic Comment Filing System* (ECFS) the San Francisco-based *Committee on Democratic Communications* of the *National Lawyers Guild* has posted the results of a technology study completed by a consortium of LPFM advocates. The study concludes that implementation of a Low Power FM ("LPFM") radio broadcast service will not lead to a significant increase in interference with current, full-power stations.

The Federal Communications Commission is currently considering the creation of a new, low power radio service. As part of its *Notice of Proposed Rulemaking*, the FCC requested studies of commercially available radio receivers to examine whether more stations could be supported on the dial without increased interference. The possibility that new, low power radio stations could interfere with full power stations currently in operation has been the most significant argument blocking adoption of the new service by the FCC. The public comment period closed on August 2<sup>nd</sup>.

In response to the FCC's request for additional research, a receiver engineering study was conducted by Broadcast Signal Lab, LLP. The study was commissioned by a coalition of LPFM advocates including the National Lawyers Guild Committee on Democratic Communications, the Media Access Project, the Microradio Empowerment Coalition, the Prometheus Radio Project, the Minority Media and Telecommunications Council, and others.

Highlights of the study include the exposure of ten commonly available radio receivers to incrementally greater levels of potentially conflicting signals, simulating the conditions that would result from the presence of LPFM stations on the FM radio dial. The study results suggested that there was indeed room to relax current FCC interference rules.

Full power radio stations are currently permitted to create "blanket" interference within a specified geographic radius near the transmission site, known as the blanketing area. LPFM signals were shown to create only minimal interference within several hundred feet of the transmitters, with many receivers showing no interference even within that small radius.

Any interference within this small blanketing area is easily remedied by low cost filters, which all radio stations (including the potential LPFM stations) are already required to provide to listeners encountering interference problems in that zone.

A typical 50,000 watt full-power station is permitted a blanketing area of 9150 feet around its transmitter. A 100 watt community station, by contrast, would be allowed a blanketing area of 401 feet.



# W5YI REPORT

America's Oldest Ham Radio Newsletter

Page #10

August 15, 1999

"The National Association of Broadcasters has consistently used buzzwords like interference to scare the American public and hide their opposition to increasing the number of voices available over the airwaves" said Alan Korn, an attorney with the National Lawyers Guild Committee for Democratic Communications. "Our study shows that opening the airwaves to the public with LPFM will cause far less interference than that caused by existing full power stations. These results confirm that the only interference the NAB is really concerned with is interference with their monopoly over the radio dial."

"It's good to be able to lay this interference issue to rest" says Jeremy Lansman, owner of KYES-TV in Anchorage. "It is now more clear than ever that LPFM will create far less interference than many already licensed radio stations do. The listening public will only benefit from the many innovative new stations that will emerge in this wave of licensing. What the NAB fears is economic competition from low power signals, not the noise."

## **LOW POWER FM : "NOT WORKING IN AUSTRALIA!"**

*"There is considerable evidence that some LPON licensees are holding large numbers of licenses with no apparent intention of using them to provide a service. These licensees may be preventing genuine aspirant LPON operators from providing community information services and other programming." [From Australian discussion paper.]*

Australia already has low power FM broadcasting and, according to a "discussion paper" released July 22nd entitled "Hoarding of Licenses for Low Power Open Narrowcasting (LPON) Services" it is not working out. LPON services provide a wide range of niche program formats on the low end of the FM radio dial to reception areas about 2 to 10 miles in diameter depending upon the location.

Output power for LPON services is limited to 1 watt ERP (effective radiated power) in residential areas and 10 watts ERP in rural areas. LPON licenses are also limited to a maximum field strength at a certain distance from the transmitting antenna which allows the same channel to be reused every 5 to 15 miles.

In most areas, only three LPON broadcasting frequencies at 87.6, 87.8 and 88 MHz are available. Typical formats include broadcasting to tourists, community news or music programming. A narrowcasting service is distinguished from mainstream FM broadcasting by the requirement that it target a narrow special interest group. Commercial advertising is permitted and in recent years, LPON services are becoming more like commercial broadcasting which certainly was not the original intent.

Like the proposed LPFM service here in the U.S., low cost LPON licensing was introduced into Australia in 1993 as a way to encourage greater diversity of radio programming. These stations are generally subject to less

stringent regulation than higher power FM broadcasters.

The Australian Communications Authority (the ACA is Australia's telecommunications regulatory agency) says they have issued more than 1,500 LPON licenses within the past five years. But ten LPON licensees hold over 50% of the licenses! And nearly two-thirds of these licenses have never been used to provide a radio service.

There is now a view in the community that several of these large holders submitted numerous applications in an anti-competitive attempt to "lock up the market" and to prevent genuine applicants from broadcasting. Those licenses were originally issued without charge and were subject to a low annual license fee (\$34 Australian). While there is a charge now, it is still very low.

There is a widespread belief that many of these licenses are being stockpiled by LPON licensees to either preclude competition to nearby mainstream FM broadcast stations or obtained with a speculative profit motive. LPON licensees are permitted by law to either sell or lease their license to others.

The discussion paper (which is similar to the FCC's *Notice of Inquiry*) outlines options to address alleged hoarding of LPON radio licenses. Options outlined in the paper include the possibility of requiring use of the license or losing it or increasing the cost of LPON license fees.

Another bold option being considered by the ACA is to replace individual LPON licenses with a license class which would permit any prospective LPPN operator to transmit from any location providing that the standard LPON technical conditions are met. This amounts to legitimizing unlicensed broadcasting. After a specified period, all existing individual LPON licenses would not be renewed. The ACA is concerned, however, about the possibility of interference to FM stations. Another possibility being considered is to permit "class licensing" only outside of the major urban areas.

The ACA said they have "...been concerned for some time that LPON licenses are possibly being misused for speculative or other undesirable, anti-competitive purposes. This can result in communities or groups with limited resources being denied the use of radio broadcasting frequencies, and thus being prevented from producing and distributing their own radio services. Hoarding restricts the choice and diversity of available radio services. If hoarding is as widespread as alleged, the ACA will take firm action to eliminate the problem."

The ACA's discussion paper outlines the background to LPON licensing, considers the current license hoarding situation and suggests a number of solutions. Copies of the discussion paper are available on the ACA Website at <http://www.aca.gov.au/issues/index.htm>.

Discussion paper comments close on August 20<sup>th</sup>.